



## **ETP1010**

**Fault Tolerant Transceiver**

*EtherCom Corporation*

1409 Fulton Place, Fremont, CA 94539, USA  
Tel. (510) 440 0242 Fax. (510) 659 8296

**info@ethercom.com**

**USER'S MANUAL**



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This is to certify that this product complies with and conforms to the following specifications:

**EN 50082-1 (1992), EN 55022 (1995) and EN 60 950**

following the provisions of **89/336/EEC & 73/23/ECC** Directives.

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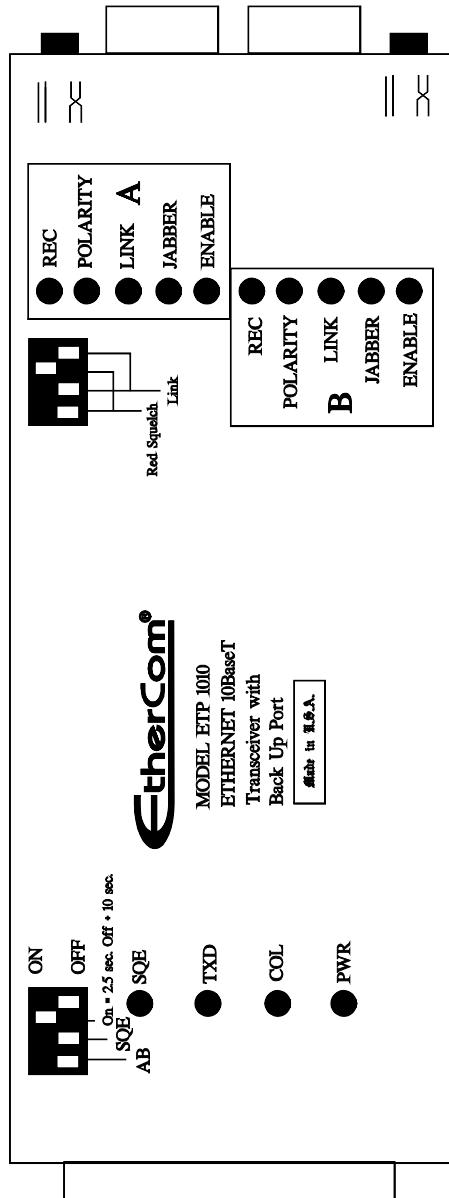
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Note: In this drawing and in drawing on Figure 2 the 2.5/10 switch is set for 2.5 seconds and the reduced squelch is on. ETP1010 is shipped with all switches in off position.

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## INTRODUCTION

### General Description

The ETP1010 is a 10 Mbps transceiver built to IEEE 802.3 standards to ensure interoperability with other devices from other manufactures. It has one AUI and two RJ45 connectors, this lets you connect two cables to the unit creating a redundant data path with the second cable. These two cables can be placed through different geographical paths, ensuring data transfer protection should one cable be faulty, cut, damaged or pulled. The two cables can run from one ETP1010 to an other ETP1010 or from an ETP1010 to any two ports of a standard 10 Mbps Ethernet hub, see figure 1.

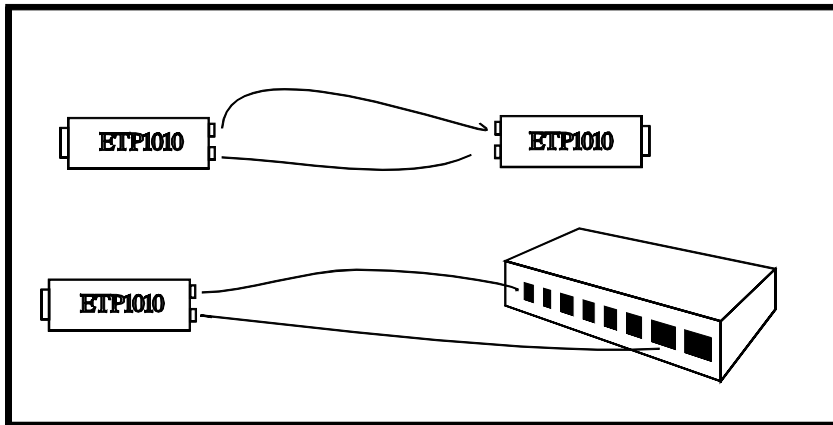


Figure 1.

The user can select to make either A or B the primary RJ45 port, by use of the A/B select switch. The ETP1010 will only pass data on the primary port, or on the active port in the case of a cable failure. When a port is not passing data during a ‘quiet period’, the transceiver will begin hunting between ports A and B. This hunting is user selectable intervals of 2.5 or 10 seconds. The transceiver will automatically return to the primary port when it senses that this port is passing valid data.

### Technical Specifications

<b>Network Standards</b>	Ethernet IEEE 802.3
<b>Speed</b>	10 Mbits/Sec.
<b>Power Supply</b>	Through the AUI Port
<b>LEDs</b>	Total 14, 1 for power, 1 for collision, 1 for transmit, 1 for collision, 2 for Receive, 2 for polarity, 2 for Link, 2 for jabber & 2 for enable.
<b>Switches</b>	Total 7, 2 MDI/MDIX cross over for Ports A & B, 1 for port A or B select, 1 for SQE (heartbeat) enable, 1 2.5 or 10 second select, 2 for reduced squelch & 2 for link.
<b>Weight</b>	13 oz.
<b>Dimensions</b>	6.9" (175mm) x 2.8" (71mm) x 0.8" (20mm)
<b>Environmental</b>	<i>Operating Temperature</i> 32 to 122F (0 to 50 C) <i>Storage Temperature</i> -4 to 140F (-20 to 60 C) <i>Relative Humidity</i> 5% to 90% (non-condensing)
<b>Connectors</b>	Two Fully Shielded RJ45 connectors, 1 AUI Connector
<b>Cabling</b>	UTP Category 3, 4 or 5, <i>maximum cable distance</i> 100 meters, AUI to 50 meters.
<b>Regulatory Approvals</b>	EMI FCC Class A, CE
<b>Warranty</b>	5 years
<b>MTBF</b>	>300,000 hours

**Ordering Part Number: ETP1010**

## LEDs: Summary

The ETP1010 has 14 LEDs.

There is one LED per transceiver for each of the following:

- **SQE**, Indicates SQE switch is on. Should be **off** during normal operation.
- **TXD**, Indicates device is transmitting, should be on during normal operation.
- **COL**, Indicates presence of collisions. Normally off during “clear” transmission periods. Will clear when collisions stop.
- **PWR**, Indicates transceiver is properly receiving power from the network device to which it is connected through AUI port. Normally **on**.

Both RJ45 Ports A & B have their own set of five LEDs for each of the following:

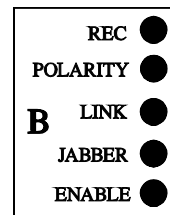
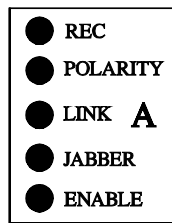


Figure 5.

- **REC** Indicates that the port is receiving. Only one of the two ports should have the receive LED **on** during reception; the other should be **off**.
- **LINK** Indicates that a proper 10BaseT link has been established at the port. The active port's Link LED should be the only one **on** during normal operation. If both LEDs are off, the transceiver is unable to establish a link at either port. The Link LED on the active or enabled port should be on if all connections have been made properly, if the cable is intact, and if the device on the other end of the cable is operational.
- **ENABLE** Indicates that the port is the one in use. Only one of the ports should **on** be in at any given time. During “hunt” periods both LEDs could appear to be **on** due to the rapid switching occurring as the transceiver searches for valid data.
- **POLIRITY** Indicates that the connection being made has the wrong polarity. Needs rewiring or use of crossover switch. Should normally be **off**.

## Key Features

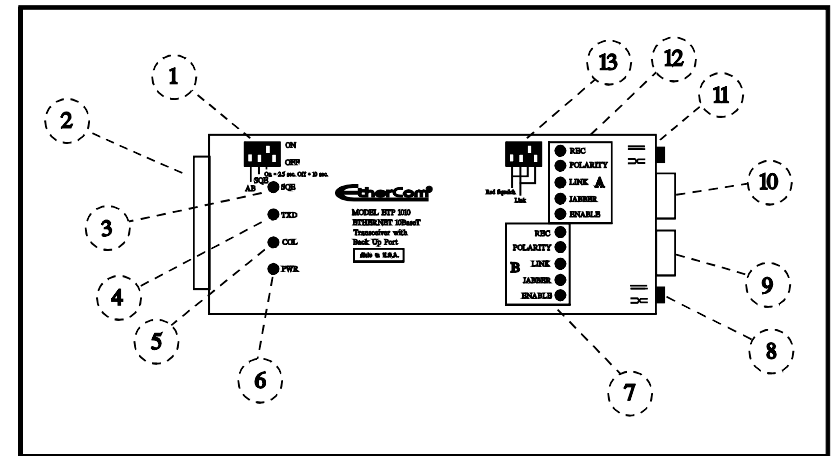


Figure 2

1	AB, SQE & 2.5/10 Switches	8	Port B Cross-over switch
2	AUI Connector	9	Port B RJ45 Connector
3	SQE LED	10	Port A RJ45 Connector
4	TXD LED	11	Port A Cross-over switch
5	COL LED	12	Port A LEDs
6	PWR LED	13	Link & Reduced Squelch Switches
7	Port B LEDs		

## Inspection of Package:

This package should contain the ETP1010, this manual. Examine the shipping container for obvious damage you believe occurred during shipment or delivery.

## Installation

### Locating ETP1010 transceivers

It is generally more convenient to run an AUI cable from the work-station or network device to the ETP1010 but not necessary, as the AUI connector can plug directly into the device. The two RJ45 cables can be up to 100 meters (328 ft.) in length. Adherence to Ethernet specifications for aggregate twisted pair length should be followed if the AUI cable is more than a few feet. EtherCom's EMC02 RJ45 to Fiber media converters may be utilized to extend these segments to 2 kilometers.

*When running cables from an ETP1010 to a second ETP1010 it makes no difference if port A on the first transceiver is connected to port A or port B on the second ETP1010.*

The ETP1010 is fully compatible with Ethernet V2.0/IEEE 802.3 transceiver specifications for CSMA/CD 10 Mbps operation.

*Power is provided through the AUI interface.*

### UTP Crossover Capability:

To provide maximum installation flexibility, there is a switch located next to each RJ45 connector. This is a UTP crossover switch that eliminates the need for a specially configured UTP crossover cable. It allows a repeater or a non-repeater device to be attached to the UTP segment side. This switch should be toggled in both directions until you can see that the LINK LED (located next to the A or B) is illuminated.

### Manual Switches

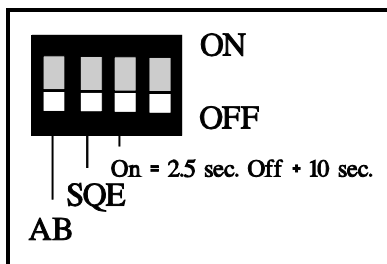
*All the switches for the ETP1010 are on the outside of the unit. This makes it unnecessary to take the unit apart and reconfigure jumpers for any changes.*

There are two sets of miniature slide switches on the front of the unit. Each set consists of four separate switches.

The first set, on the left (closer to the AUI connector) only utilizes switches 1, 2 & 3. (switch number 4 is non functional):

- **Switch 1, marked A/B,** Selects either port A or port B as primary port. Off (the down position) makes A the primary port & on (the up position)

**Figure 3**



- makes B the primary port
- **Switch 2, marked SQE,** Enables SQE testing. Should be in the **off** (down) position for operation (normal position upon receipt from factory).
- **Switch 3, marked 2.5-10,** Sets timing intervals to either 2.5 or 10 second as the “quiet period” prior to ‘hunting’ to the alternate port, and as “valid carrier period” prior to stopping switching search for data. This switch establishes the delays for both ports as well as for both the quiet and the valid carrier periods. On (up) is for 2.5 & Off (down) for 10 seconds.

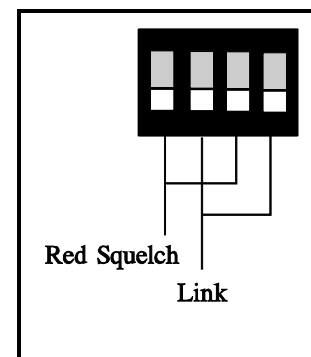
**Note:** Switch 4, (unmarked) is disconnected.

The second set of 4 switches, located on the *right side* front (closer to the RJ45 connectors) are:

- **Reduced squelch** There are 2 Reduced Squelch switches: one for each RJ45 port (switches 1 and 3). The switch should be normally **off** for up to 100m meters of unshielded twisted pair to the port. Turn on for shielded twisted pair or for obtaining distance greater than 100 meter transmission range for unshielded twisted pair. This latter condition occurs when the network is “out of spec” (for max. wiring distances); network integrity is at risk when greater than 100 meter unshielded twisted pair segment lengths are used, although the ETP1010 will typically accommodate distances up to 150 meters of unshielded twisted pair if the Reduced Squelch is **on**. This out of spec condition is not recommended.
- **Link**, There is a link switch for each port (switches 2 and 4).
- Turn **on** for testing purposes only, during which the automatic searching for link integrity is disabled.

**Figure 4**

- Turn **off** for normal operation to enable automatic switching.



There are two-position cross-over switches on the side next to each RJ45 port. These are the Normal or Crossover wiring polarity switches for each port and are labeled with wiring symbols on the top surface.

- **Normal/Crossover** The **Crossover** position enables use with reversed polarity wiring. The **Normal** position is for standard wiring pin-outs. Refer to the Users Manual for pin-out descriptions.